INFORMATION PROCESSING APPARATUS, INFORMATION PROCESSING METHOD, AND COMPUTER PROGRAM PRODUCT

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation of U.S. application Ser. No. 13/196,963 filed Aug. 3, 2011, which contains subject matter related to that disclosed in Japanese Priority Patent Application JP 2010-188126 filed in the Japan Patent Office on Aug. 25, 2010, the entire contents of both of which are hereby incorporated by reference.

BACKGROUND

[0002] The present disclosure relates to an information processing apparatus, an information processing method, and a computer program product.

[0003] In recent years, devices having touch panels are widely available. When a user uses a device having a touch panel, the user can enjoy intuitive operation by touching a screen. Therefore, it is considered that the reason why such devices come into wide use is that the size of the display region can be increased with respect to the size of the device. Moreover, the resolution of the screen such as a liquid crystal display screen is increased so that the device displays as much information as possible in the limited display region.

[0004] However, the display region needs to have a certain size of area so as to allow a user to perform touch operation even when the resolution of the screen is increased. For this reason, when the size of the display region is increased, the high resolution screen may not be sufficiently utilized in view of the cost and the like. For the same reason, the device for which touch operation is necessary needs to have a certain physical size, and therefore, it is difficult to incorporate such device into a small mobile device.

[0005] In order to improve such situation, for example, Japanese Patent Application Laid-Open No. 2004-54854 suggests a technique for sorting options in proximity to a pen with which a position on a touch panel is specified. When this technique is used, the options move to a position where one of them can be selected with the pen. Therefore, even when the displayed options are concentrated in a small display region, one of the options can be selected.

[0006] For example, Japanese Patent Application Laid-Open No. 2009-116583 suggests a technique for enlarging/displaying or focusing/displaying an option at a position closest to the position of the finger that is brought into proximity. When this technique is used, the focus can be switched by a slightly-changed coordinate specified with the finger.

SUMMARY

[0007] However, for example, in the technique suggested in Japanese Patent Application Laid-Open No. 2004-54854 explained above, it is necessary to rearrange the options. Therefore, there is an issue in that it takes much time for a user to understand the relationship before and after the sorting. For example, in the technique suggested in Japanese Patent Application Laid-Open No. 2009-116583 explained above, it is necessary to select one of the options while a finger is released from the display unit. Therefore, a majority of the display region is covered by the finger, and there is an issue in that the limited area in the display region may not be efficiently utilized.

[0008] In light of the foregoing, it is desirable to provide a novel and improved technique capable of allowing a user to select a desired option from among a plurality of options in a display region while effectively making use of the limited display region.

[0009] In one embodiment, an information processing apparatus, includes a specified region detection unit that detects an interaction area of a position detection surface specified by a manipulation object; a focused target extraction unit that extracts at least some of a plurality of focused targets based on the interaction area; a selection candidate extraction unit that extracts a selection candidate from the plurality of focused targets; and a display that displays at least some of the plurality of focused targets, and emphasizes the selection candidate relative to other of the plurality of focused targets.

[0010] One aspect of the apparatus is that the display is incorporated into a wireless mobile terminal; and the plurality of focused targets include keys of a software keyboard.

[0011] Another aspect is that the plurality of focused targets are keys of the software keyboard that fall within a footprint of the interaction area.

[0012] A further aspect is that the display displays the plurality of focused targets in a display area that does not overlap the keys of the wireless keyboard.

[0013] Furthermore, the display displays the selection candidate as an emphasized alphanumeric character, as compared to other of plurality of focused candidates.

[0014] In another aspect, the emphasis on the selection candidate changes to a different alphanumeric character in response to the selection candidate extraction unit detecting a change in position of the manipulation object with respect to the interaction area.

[0015] Additionally, a proximity of the selection candidate to the different alphanumeric character is related to an amount of movement of the manipulation object with respect to the interaction area.

[0016] The display may include the position detection surface, and the specified region detection unit detects pressure from the manipulation object when contacted by the manipulation object.

[0017] As another aspect, the specified region detection unit is responsive to change in capacitance.

[0018] Optionally, the selection candidate extraction unit selects the selection candidate by relative proximity to a central coordinate barycentric point caused by the manipulation object relative to the position detection surface.

[0019] The selection candidate is optionally emphasized by at least one of an insertion-point cursor and bold text.

[0020] Optionally, the display is incorporated into an electronic map device; and the plurality of focused targets include geographic features within a displayed geographic area.

[0021] The selection candidate may be emphasized by at least one of color, scale, pin and geometric marker.

[0022] One aspect is that when the manipulation object covers from sight one or more keys of the software keyboard, the display displays the at least some of the plurality of focused targets in a display region of the display that is not covered by the manipulation object.